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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,282

04/28/2005

Karsten Contag

P2002,0918

9492

7590

11/22/2005

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EXAMINER

PEACE, RHONDA S

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/533,282	Applicant(s) CONTAG, KARSTEN	
	Examiner Rhonda S. Peace	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 21-29 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 20 and 30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/28/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 4/28/2005 was filed in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Pertaining to claims 21, 24, 25, and 27, the applicant claims a specific lens and mirror arrangement for use in the second optical system or "a respective combination of optical elements which act in an analogous fashion." This language is considered indefinite, as it fails to distinguish limitations of the current invention. As a matter of illustration, the lens and mirror arrangement of claim 24 requires a plane mirror and two

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cylindrical lenses which acts to "reflect radiation which is transmitted past the side of the waveguide and directs it onto the waveguide from a second side," as is known due to the dependency of claim 24 upon claim 1. However, if "a respective combination of optical elements which act in an analogous fashion" is a suitable replacement for the plane mirror and lens combination also proposed within claim 24, it is then unclear if the limitations following this statement apply to this "respective analogous combination."

For examination purposes, the examiner has assumed that any combination of optical components which "acts to reflect radiation which is transmitted past the side of the waveguide and directs it onto the waveguide from a second side," a limitation proposed in claim 1, is a suitable replacement for the plane mirror/lens combination proposed initially in claim 24, and that the limitations following within the claim ("the lenses are arranged between the optical waveguide...") do not apply to this "respective analogous combination" alternative.

With regards to claims 22, 23, 26 and 28, these claims inherit the unclear nature of their parent claims discussed above. As claims 22, 23, 26 and 28 address further limitations regarding the focal lengths and placement of lenses, as well as mirrors, again, it is unclear whether or not these limitations apply to "a respective combination of optical elements which act in an analogous fashion," especially if such a system does not have the discussed amount of lenses or mirrors, as well as the types of lenses or mirrors discussed within the parent claims 21, 24, 25 and 27. As a result, claims 22, 23, 26, and 28 will not be considered with respect to the prior art until the unclear nature of their patent claims has been corrected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 18, 19, 21, 24-25, 27, 29, and 31-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Conde et al (US 6453090).

Addressing claim 18, Conde et al discloses a device for thermally treating an optical waveguide, *as is illustrated in Figure 10A and discussed in the sections of column 10 lines 47-67 and column 11 lines 1-49*, comprising:

- Radiation source **50**
- First optical system comprising beamsplitter **52**, lens and mirrors subsystem **58**, control means **60** and **62**, and second light source **64**.

The first optical system generates a beam 68 twice the diameter of the waveguide to be treated to propagate transverse to the longitudinal direction of the waveguide 42 (column 7 lines 54-51, hereafter indicated as 7:54-61). Control means 60 and 62 allows for the waveguide 42 to be transversely positioned off of the center axis of the beam 68, with regard to the longitudinal axis of the waveguide 42, which is the preferred location as it preserves the fiber's absorption and conductivity (5:50-62).

- A second optical system comprising lens and mirrors subsystem 56 and beamsplitter 52. This second optical system is positioned behind the waveguide 42, with respect to the laser 50, and reflects radiation that has been transmitted past the side of the waveguide 42, such as the beam portion that passes through beamsplitter 52, to be directed into the waveguide from a second side.

In addition, the disclosed system of Conde et al also is suitable for performing treatment upon more than one waveguide (4:65-67 and 5:1-4).

With respect to claim 19, as can be viewed in Figure 10A, Conde et al shows the second optical system is configured to image the beam in a plane parallel to the longitudinal axis of a waveguide 42, as is seen between the two mirrors preceding lens 56 of the lens/mirror subsystem. This imaging is different from that in a plane extending transversely with respect to the longitudinal axis of the optical waveguide, as it extends plane parallel to the longitudinal axis of a waveguide.

With regards to claims 21, 24, 25, and 27, Figure 10A of Conde et al illustrates the second optical system as previously discussed having an aspherical lens and plane mirror, both collectively indicated as element **56**, where the lens is arranged between the waveguide **42** and the plane mirror. As also can be seen in Figure 10A, the focal length of the lens **56** is essentially equal to the distance from the lens to the waveguide **42**, measured from the lens to the fiber in a direction transverse to the longitudinal direction of the waveguide, as it can be seen that the light exiting the lens converges to a fine point at the location of the waveguide. Referring specifically to claims 24, 25, and 27, this aspherical lens and plane mirror combination qualifies as a “respective combination of optical elements which act in an analogous fashion” to the reflective systems proposed in claims 24, 25, and 27, as all “reflect radiation which is transmitted past the side of the waveguide and directs it onto the waveguide from a second side.”

Pertaining to claims 29 and 31, Conde et al teaches the welding of multiple optical fibers arranged in parallel (4:47-67, 5: 1-4). These fibers may be treated as was previously discussed, such as the placement of the fibers off-axis with regard to the welding beam (5:50-62), as the welding beam acts on the fiber in a direction transverse to the fiber's longitudinal axis (see Fig 10A), and wherein the beam is at least twice the diameter of the item, in this case items, to be welded (7:54-61).

Regarding claims 32, 33, and 34, Conde et al shows the existence of an angle between the first optical axis and the second optical axis, the angle being equal to π radians. In addition, the first optical system as previously described contains a “diffractively acting optical element” **58**, as this lens bends, or diffracts, light. Moreover,

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the first optical system has an optical component **58** (lens) for directing the beam onto the waveguide, a drive device **60** and **62** which allows the *relative* placement of the waveguide **42** with respect to the optical element **58**, so that the beam can be shifted in the longitudinal direction (10:47-67, 11:1-49, Fig 10A). This movement is analogous to allowing the control means **60** and **62** to control the movement of lens **58**, as both movements allows and adjusts the *relative* placement of the waveguide **42** with respect to the optical element **58**.

Allowable Subject Matter

Claims 20 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The applicable prior art does not disclose, nor does it reasonably suggest a device for thermally treating an optical waveguide where a second optical system is configured to image the beam profile in a non-inverted fashion in a plane parallel to the longitudinal axis of the fiber, and also images the beam in an inverted fashion in the plane extending transversely with respect to the longitudinal axis of the waveguide, in each case with an approximate ratio of 1:1 (claim 20). Moreover, the applicable prior art does not disclose, nor does it reasonably suggest a device for thermally treating an optical waveguide wherein the distance between the waveguides to be treated corresponds to at least a diameter of the waveguide, and wherein the beam profile

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extends over the outermost waveguides by a length of at least one diameter of one of the waveguides (claim 30).

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kinoshita et al (US 4350867) discloses the fusion splicing of multi-layer optical fiber bundles. Muchel (US 4420219) discloses an optical waveguide connector utilizing two aspherical lenses. Tian (US 6817785) discloses a method and apparatus for splicing optical fibers utilizing the method wherein the beam is directed so that the waveguide to be spliced lies off of the beam axis.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda S. Peace whose telephone number is (571) 272-8580. The examiner can normally be reached on M-F (8-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272- 2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rhonda S. Peace
Examiner
Art Unit 2874


MICHELLE CONNELLY-CUSHWA
PRIMARY EXAMINER
11/16/05